

**REMARKS**

**I. Status of Claims**

Claims 30, 32-39, 42-50, 52-59, and 61-68 are pending in this application, and have been rejected by the Examiner. No claims have been amended by this response.

**II. Rejection Under 35 U.S.C. § 103(a)**

The Examiner has rejected claims 30, 32-39, 42-50, 52-59, and 61-68 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,744,978 to Homan ("*Homan*") in view of WO 93/23009 to Kumar et al. ("*Kumar*") for the reasons set forth on pp. 2-4 of the Office Action. Applicants respectfully traverse the rejection.

The presently claimed invention relates to an aerosol composition comprising, in a cosmetically or dermatologically acceptable medium, (1) at least one grafted silicone polymer having a polysiloxane skeleton grafted with non-silicone organic monomers as defined, e.g., in claim 30, and (2) at least one aqueous dispersion of insoluble particles of at least one cationic polymer, wherein the at least one grafted silicone polymer and the at least one aqueous dispersion are present in the aerosol composition in a combined amount effective for fixing a keratin substance.

According to the Examiner, *Homan* teaches "a hair treating composition comprising [a] cationic polymer and a carboxyfunctional polydimethylsiloxane containing a carboxy functional group; and using the composition as a hair fixative, in the form of aerosol, spray, etc." *Office Action* at p. 2. The Examiner admits, however, that *Homan* does not teach a polymer residue of at least one anionic monomer containing ethylenic unsaturation "as claimed in the instant polysiloxane skeleton." *Id.*

To remedy *Homan's* deficiencies, the Examiner relies on *Kumar*, alleging that *Kumar* relates to cosmetic compositions containing a vinyl-silicone graft or block copolymer "suitable . . . for the present invention." *Id.* at p. 3. The Examiner concludes that it would have been obvious to combine *Homan* and *Kumar* because both "teach preparing hair care composition[s] in the form of aerosols containing<sup>1</sup> the claimed silicone polymers and cationic polymers, [and] thus constitute analogous art." *Id.* at p. 4.

The Examiner further alleges that one of ordinary skill in the art would have found it obvious to combine the teachings of *Homan* and *Kumar* because *Kumar* teaches that their silicone polymers are an improvement over conventional silicone polymers used in hair care compositions "as the polymers form a good water-resistant and friction-resistant film, and provide excellent gloss, brilliance, conditioning and style retention without any sticky feeling as compared to the conventional silicone polymers, among which WO '009 refers to silicone polymers of *Homan et al.*" *Id.*

Applicants respectfully submit that this combination is not obvious, as, among other things, there is no motivation to combine *Kumar* with *Homan* except for that found in the Applicants' specification. More specifically, to establish a *prima facie* case of obviousness, an Examiner must show that a reference (1) teaches all the present claim limitations; (2) would have suggested to or provided motivation for one of ordinary skill in the art to make the claimed invention; and (3) would have provided one of ordinary skill with a reasonable expectation of success in so making. See M.P.E.P. §2143.

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<sup>1</sup> Presumably the Examiner means "containing in combination" since neither reference teaches both the silicone polymers and cationic polymers of the invention.

**A.        *The combination of Homan and Kumar does not teach all the limitations of the currently pending claims.***

*Homan* does not teach at least one aqueous dispersion of insoluble particles of at least one cationic polymer. Rather, *Homan* teaches cationic organic polymers that are soluble in water. For example, *Homan* teaches that:

hair-treating compositions can be prepared by forming an aqueous dispersion, emulsion, or microemulsion of the polysiloxane *in an aqueous solution of the organic polymer*. The polysiloxane may be emulsified in an aqueous solution of organic polymer or the polysiloxane may be first emulsified in water and then the polysiloxane emulsion combined with an *organic polymer solution*.

*Homan* at col. 5, lines 31-37 (emphasis added). Because these cationic organic polymers are soluble in water, *Homan* cannot and does not teach at least one aqueous dispersion of insoluble particles of at least one cationic polymer.

As for *Kumar*, it teaches that the vinyl silicone graft or block copolymers taught therein are "a partial or total substitute for or in combination with anionic, nonionic, cationic, and amphoteric polymers, and polysiloxane polymers conventionally used in these hair care products." *Kumar* at p. 42, lines 22-26. Thus, the compositions of *Kumar* may optionally comprise additional polymers, and may further optionally comprise cationic polymers, but *Kumar* does not teach or even remotely suggest that these optional cationic polymers are present in an aqueous dispersion of insoluble particles.

Thus, *Homan* and *Kumar* do not, singly, or in combination, teach a composition comprising at least one aqueous dispersion of insoluble particles of at least one cationic polymer. Consequently, the combination of *Homan* and *Kumar* also cannot teach a

composition wherein at least one grafted silicone polymer and at least one aqueous dispersion are present in a combined amount effective for fixing a keratin substance.

Therefore, the combination of *Homan* and *Kumar* cannot and does not teach all the elements of the claimed invention. The rejection should be withdrawn for this reason alone.

**B. *There is no motivation to combine Kumar with Homan other than that found in the Applicants' specification.***

1. The combination of *Homan* and *Kumar* does not provide motivation for choosing aerosol compositions.

Neither *Homan* nor *Kumar* provides any motivation for selecting an aerosol composition, as claimed by Applicants, from a multitude of embodiments disclosed. *Homan* relates to "hair care products such as shampoos, setting lotions or gels, aerosol or pump sprays, mousses and conditioners." *Homan* at col. 2, line 67 to col. 3, line 1. *Kumar* relates to cosmetic compositions, including foundations, lipsticks, rouges, anti-perspirants, deodorants, and tooth pastes (*Kumar* at p. 8, lines 2-4), in addition to hair care compositions such as shampoos, rinses, hair treatment products, hair setting products, and cold permanent wave lotions (*Kumar* at p. 40, lines 35-37). No guidance exists for the choice of an aerosol composition. Overall, the Examiner's alleged motivation clearly reflects impermissible hindsight and reliance on the present application.

2. The references provide no motivation to obtain "improved results" when they already teach solution of a problem in the art.

Further, *Homan* teaches that the compositions disclosed therein "increase the durability of a set in hair; do not make hair feel unnaturally sticky or stiff" (*Homan* at col. 2, lines 8-9), "improves the ease of wet combing and provides a silkier touch" (*Homan* at col. 5, line 68 to col. 6, line 1), and result in "silkier touch and easier combing characteristics" in dry hair (*Homan* at col. 6, lines 3-4). *Homan* thus teaches that the compositions disclosed therein provide conditioning and style retention to hair without a stiff or sticky feel. Consequently, *Homan* could not possibly have motivated the ordinary artisan reading its disclosure to try to formulate new compositions, using substituted ingredients such as the polymers of *Kumar*, that would provide improved fixing power. *Homan* cannot be relied upon to provide motivation to correct a problem that *Homan* teaches was already solved.

With regard to the Examiner's assertion that the skilled artisan would have been motivated to combine the polymers of *Kumar* with the compositions of *Homan* in order to achieve "excellent brilliance, gloss," Applicants note that *Homan* does not teach that brilliance or gloss are important, necessary, or desirable characteristics for the compositions disclosed therein.

3. *Kumar* teaches that polysiloxanes may obviate the need for additional polymers in cosmetic compositions.

Additionally, a skilled artisan would have had no motivation to combine *Homan* and *Kumar* at least because neither teaches or suggests the desirability of a composition comprising a cationic polymer. *Homan* teaches that "[t]he compositions of this invention provide many improvements in hair characteristics that are not obtained

by the use of either polysiloxane or organic polymer alone." *Homan* at col. 5, lines 64-67. Clearly, according to *Homan*'s teachings, both a polysiloxane and a cationic polymer are necessary in order to achieve the desired effects.

By contrast, *Kumar* describes anionic, nonionic, cationic, and amphoteric polymers as *optional* ingredients. Indeed, *Kumar* states that "[t]he copolymers in accordance with the present invention are used in these hair care products as a *partial or total substitute for* or in combination with anionic, nonionic, cationic, and amphoteric polymers, and polysiloxane polymers conventionally used in these hair care products." *Kumar* at p. 42, lines 21-26 (emphasis added). This passage clearly reveals that the vinyl-silicone graft or block copolymers disclosed in *Kumar* possess all the necessary cosmetic properties, and that additional optional polymers are unnecessary to achieve these cosmetic properties. This provides yet another reason why one of ordinary skill in the art would not have been motivated to use the silicone polymers of *Kumar* in the compositions of *Homan*.

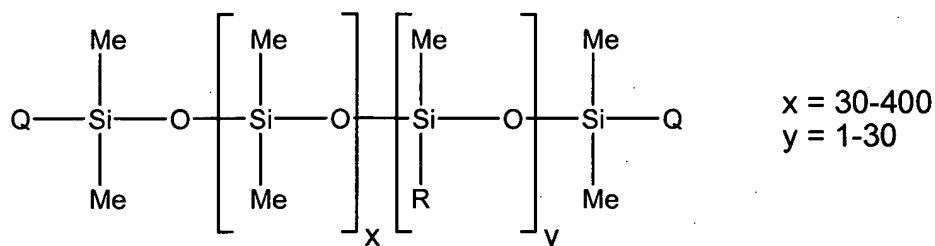
4. The silicone polymers taught by *Homan* are distinct from those taught by *Kumar* and one of ordinary skill in the art would not substitute one for the other.

In addition to the arguments presented above, Applicants take the position that a skilled artisan would not have been motivated to combine *Homan* and *Kumar* at least because the silicone polymers taught by *Homan* are distinct from those taught by *Kumar*, and would have been expected to have distinct physical, chemical, and cosmetic properties.

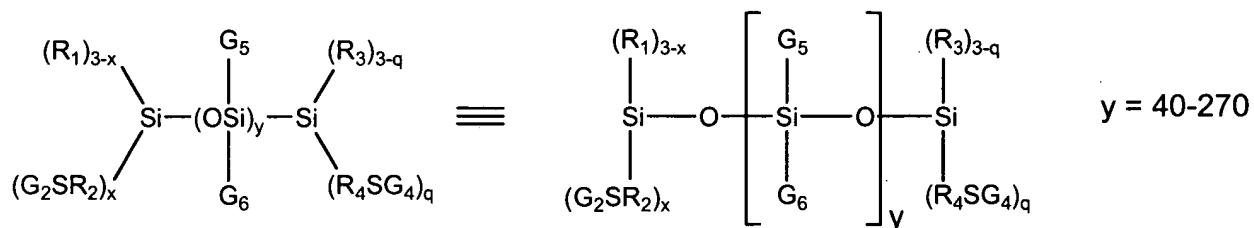
Specifically, *Homan* teaches carboxyfunctional polysiloxanes having the chemical structure depicted below, where R is a carboxyfunctional radical such as a

carboxyalkyl, carboxyalkylthio, alkoxycarbonylalkyl, or alkoxycarbonylalkylthio radical.

These polysiloxanes have a large neutral block attached to a small, anionic, carboxyfunctionalized block (R).



*Kumar* teaches graft or block copolymers having a silicone polymer block and a vinyl polymer block. These copolymers have the chemical structure depicted below, where  $G_5$  and  $G_6$  "represent monovalent moieties which can independently be the same or different selected from the group consisting of alkyl, aryl, alkaryl, alkoxy, alkylamino, fluoroalkyl, hydrogen, and -ZSA." *Kumar* at p. 8, lines 25-40.  $G_5$  and  $G_6$  each comprise at least one -ZSA moiety (*Kumar* at p. 10, lines 24-25), where "A represents a vinyl polymeric segment consisting essentially of polymerized free radically polymerizable monomer, and Z is a divalent linking group." *Kumar* at p. 8, lines 25-40.



The Examiner concedes that "Homan does not teach a polymer residue of at least one anionic monomer containing ethylenic unsaturation" that would correspond to the A group of *Kumar* (*Office Action* at p. 2), but asserts that the polymers of *Kumar* could be substituted therein. As these polymers are chemically, structurally, and

topologically distinct, one of ordinary skill in the art would not have assumed that their physical, chemical, or cosmetic properties would be comparable, or that it would be obvious to substitute one for the other. These differences are discussed further below

First, the polymers of *Homan* differ from those of *Kumar* in having a vinyl polymeric segment consisting essentially of polymerized free radically polymerizable monomer. A skilled artisan would have expected the additional vinyl polymeric segment found in the polysiloxanes of *Kumar* to change the molecular weight, hydrophobicity, viscosity, and other physicochemical properties of the siloxanes in *Kumar* relative to those of *Homan*.

Second, the polymers of *Homan* differ from those of *Kumar* in not having a localized block of negative charge. One of ordinary skill in the art would have expected the negative charge of the carboxyfunctional polysiloxanes of *Homan* to constructively interact with the cationic polymers of *Homan*, leading to the beneficial properties of the compositions *Homan* teaches. Furthermore, the skilled artisan would have expected the distinct architecture of the polymers taught by *Homan*, wherein the negative charge is concentrated in a small anionic block at one end of the polymer, to contribute to the beneficial properties of the compositions.

Thus, the polymers of *Homan* are not interchangeable with those of *Kumar*. In view of the differences between the polysiloxanes taught by *Homan* and *Kumar*, a skilled artisan would thus not have considered the different polysiloxanes of *Homan* and *Kumar* to be equivalent or interchangeable, and would not be motivated to exchange one polymer with another. The rejection should be withdrawn for this reason alone.



**C. The references do not provide one of ordinary skill with a reasonable expectation of success in making the combination suggested.**

The Examiner alleges that one of ordinary skill in the art would have found it obvious to combine the teachings of *Homan* and *Kumar* because *Kumar* "teaches that their silicone polymers is [sic] an improvement over the conventional silicone polymers used in hair care composition." *Office Action* at p. 4. To the contrary: a skilled artisan would have had no reason to expect that the combination of carboxyfunctional polydimethylsiloxane polymers and cationic, organic polymers taught by *Homan* would be more or less cosmetically effective than the vinyl-silicone graft or block copolymers of *Kumar*. Applicants note that although *Kumar* discloses prior art silicone polymers, *Kumar* does not provide any comparison of the inventive silicone polymers to the cited prior art silicone polymers, and in particular, does not state that the polymers disclosed therein constitute "an improvement" over any of the other silicone polymers. In particular, Applicants note that *Kumar* does not compare the cosmetic properties of the silicone polymers disclosed therein to the carboxyfunctional polydimethylsiloxane polymers of *Homan*.

Even if, for the sake of argument, a skilled artisan were to assume that the vinyl-silicone graft or block copolymer of *Kumar* had more favorable cosmetic properties, that artisan would not have necessarily expected that combining *Homan* with *Kumar* would "provide excellent brilliance, gloss, conditioning and style retention to hair without stiff or sticky feel," as alleged by the Examiner. *Office Action* at p. 4.

As discussed above, one of ordinary skill in the art would have expected the polysiloxanes of *Homan* and *Kumar* to be chemically distinct, and to have correspondingly different chemical, physical, and cosmetic properties. That skilled

artisan would not have considered these polysiloxanes to be interchangeable, and would not have a reasonable expectation of success in introducing the polysiloxanes of *Kumar* into the compositions of *Homan*. The rejection should be withdrawn for this reason alone.

### III. Conclusion

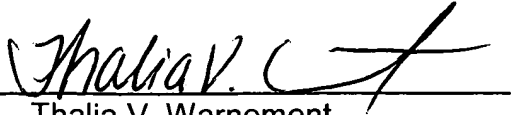
Thus, the Examiner has failed to establish a *prima facie* case of obviousness because (1) the combination of *Homan* and *Kumar* does not teach all the present claim limitations; (2) there is no suggestion or motivation for the combination of *Homan* and *Kumar* in the specification of either *Homan* or *Kumar*; and (3) one of ordinary skill in the art would have had no reasonable expectation of success in introducing the polysiloxanes *Kumar* into the compositions of *Homan*. Applicants therefore respectfully request the withdrawal of this rejection.

In view of the foregoing remarks, Applicants respectfully request the reconsideration and reexamination of this application and the timely allowance of the pending claims. Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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